

interfemoral membrane; he then put his head under his body, withdrew the fly from the bag, and devoured it at leisure. This appeared always to be the *modus operandi*, more or less cleverly performed. Several times, when the fly happened to be on the flat surface of the ground, the capture appeared more difficult, and my little friend was by his exertions thrown on his back; the tail could then be seen turned round, with its tip and the margin of the membrane pressed against the stomach, forming a capital trap, holding the fly, the captor remaining on his back till he had withdrawn the fly from the bag.

I had no opportunity of observing the action when the Bat was in full flight; but if the insect was captured a few inches from the side of the cage, the mode was the same. When flying, the interfemoral membrane is not extended to a flat surface (and appears not capable of being so stretched), but always preserves a more or less concave form, highly calculated to serve the purposes of a skim-net to capture insects on the wing. Occasionally, when the Bat was sleepy, sitting at the bottom of the cage, nodding his head, a poor silly "Bluebottle Fly," no doubt of tender age, and not read in the natural history of the Vespertilionidæ, with the greatest confidence walked quietly under his friend, passing nose, ears, and eyes without danger; but immediately he touched the sensitive membrane of the bag it was closed upon him, and there was no retreat except by being helped out of the difficulty by the teeth of the Bat.

On looking through books at hand to see if the above was noticed, I find that most accurate of observers of nature's works, Gilbert White, of Selborne, speaking of a tame Bat, says, "If you gave it anything to eat, it brought its wings round before its mouth, hovering and hiding its head in the manner of birds of prey when they feed" (a capital description of the action of my little friend, only no mention is made of the bag). Also, in Bell's 'British Quadrupeds' is the following:—"Of Bats, the interfemoral membrane is probably intended to act as a sort of rudder in rapidly changing the course of the animal in the pursuit of its insect food." "In a large group of foreign Bats which feed on fruits or other vegetable substances, as well as some of carnivorous habits, but whose prey is of a less active character, this part is either wholly wanting or much circumscribed in extent and power."

May it not also be, that they do not require an entomological bag-net?

Believe me yours truly,

To W. Francis, F.L.S.

WM. SOWERBY.

On the Habits of the Water-Shrew (Crossopus fodiens).

By N. L. AUSTEN, Esq.

I am induced to offer you the following account of the Water-Shrew, as the animal in question, though tolerably abundant in many localities, may not have come under the personal observation of some of my hearers. I have also never seen it mentioned as having been kept with success in confinement, and therefore will attempt to describe as accurately as possible the habits of a pair that lived in my possession for a considerable time, hoping that the details may not

prove altogether uninteresting. In form this Shrew closely resembles the common species, the snout being lengthened in the same manner, and the fur having the same velvety softness of texture. In size, however, it is superior, a full-grown male measuring a little more than 5 inches in total length, whereas the Field-Shrew rarely exceeds 4 inches; the feet and tail are fringed with stiff white hairs, which are of great assistance to the creature when swimming. The colour on the head and back is commonly a rich jetty black, on the sides and underparts pure white; the line of demarcation between the two colours very distinctly defined, adding much to the beauty of the fur; a small tuft of white hairs is also noticeable at the corner of the ear.

The Water-Shrew, as its name implies, is usually found in the vicinity of pools and rivulets, where it forms in the banks long and winding burrows, which penetrate for a considerable distance into the loose soil, and end in a small chamber, furnished with a bed of moss and dry grass. In this secluded retreat the young are produced about the middle of May, there being usually from six to ten in the litter. When first born, they are curious pinky-white little animals, with round blunt noses and semitransparent bodies, bearing as little resemblance as possible to their parents. A small colony of these Shrews frequently inhabit the same spot, and towards the cool of the evening may be observed searching for food, and sporting with each other in the water, now hiding behind stones or large leaves to elude their companions, and then darting out to engage in a general skirmishing chase, diving and swimming with the greatest activity, and occasionally taking a plunge into their holes. By constantly traversing the same ground, in going and returning from their burrows, they gradually tread down a path among the grass and herbage, by which their presence may readily be discovered by an experienced eye. When under water their fur is covered with multitudes of tiny air-bubbles, that shine like silver, and have a beautiful effect when seen against the dark surface of the body. Spots where the stream in some bend of its course forms a little pool are the favourite resorts of this pretty little creature; and, although easily startled by the slightest noise, their range of vision seems far from extensive, as, by quietly approaching, I have often succeeded in watching their gambols without causing alarm among the small community. The food of the Water-Shrew includes insects, worms, young frogs, and small fish, which latter it pursues and captures with all the graceful dexterity of the Otter. I am enabled to speak with certainty as to this fact, by observing the mode employed by my own pets in seizing their prey. I obtained them in the following manner:—Having noticed a very fine pair that frequented a small pond, I set several circular wire mouse-traps, baited with small frogs, in what I supposed to be their favourite runs, and secured both male and female by the next morning. I had already had a cage constructed as much as possible in accordance with what I knew of their mode of life. It was shaped like an ordinary arched dormouse-cage, but considerably larger than those used, being 12 inches in height by 18 in length; a zinc tank was also adapted to hook on to the doorway, so that they might enjoy the comfort of a bath. When first introduced into their new

dwelling, the Shrews evinced no symptoms of fear, appearing quite at home, and feeding freely on worms, raw meat, and insects. A few days after I procured them, I placed three or four minnows in the bath attached to the main part of the cage. Directly the Shrews caught sight of the fish, they both plunged instantly into the water, and quickly reappeared, each having secured a victim, which they proceeded to discuss with great apparent gusto, having first killed it by a bite through the head. I remarked that while feeding they held the fish firmly between their fore paws, in the same manner as the Otter, and, commencing at the head, ate gradually downwards, by a succession of sharp snapping bites. Their appetites were very good, as they frequently consumed two or three minnows each in one day—a very tolerable amount, considering their size. When running about their cage, these Shrews often uttered a shrill sibilant chirp, resembling the note of the Grasshopper-Lark. They would also play in the water, half rearing up and striking with their fore paws, or rolling over and over each other on the surface. Though appearing perfectly reconciled to captivity, they manifested no attachment, nor especial tameness, biting viciously when touched. They lived with me in this way several months in perfect health, till the cage-door being accidentally left open one day in my absence, the inmates levanted, as a matter of course, and were never seen or heard of afterwards. I hope, however, shortly to obtain more, as when treated properly, and supplied with plenty of water, they thrive, and might probably be induced to breed in confinement. Besides the Common Shrew, which is exclusively terrestrial, another species, the Oared Shrew (*Crossopus remifer*), is found in Britain. For some time this animal was confounded with the Water-Shrew, as its habits are similar, and it frequents the same situations. It differs, however, in colour, the black on the back and sides being flecked with white hairs, the throat and abdomen blackish grey tinged with yellow. Though scarcer than the two other kinds, the Oared Shrew is more abundant than is often supposed by naturalists, as I have several times caught it in different parts of Hertfordshire and Surrey. I must here remark that the ears of both the Oared and Water-Shrew are furnished with a peculiar and beautifully contrived apparatus by which the water is excluded from those organs. It consists of three small valves, which fold together when the animal dives, effectually preventing the entrance of a single drop of moisture. As soon, however, as the pressure is removed, on the Shrew rising to the surface, they reopen spontaneously. Without this provision of nature, the animal would constantly be annoyed by the water filling the cavities and irritating the delicate membranes of the ear.

The dimensions of full-grown individuals of the three species are as follows:—

<i>Common Shrew.</i> in. lin.	<i>Water-Shrew.</i> in. lin.	<i>Oared Shrew.</i> in. lin.
Total length 4 1	Total length 5 7	Total length 6 1
Head 1 2	Head 1 5	Head 1 7
Tail 1 9	Tail 2 1	Tail 2 4
Hind foot . . 0 3	Hind foot . . 0 5	Hind foot . . 0 7

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